

REMARKS¹

In the outstanding Office Action, the Examiner rejected claims 1, 3, 5, and 6 under 35 U.S.C. § 103(a) as being unpatentable over Loscos, Céline et al., "Interactive Virtual Relighting of Real Scenes," IEEE Transactions on Visualization and Computer Graphics, Vol. 6, No. 4, October-December 2000 ("Loscos"); rejected claims 2 and 4 under 35 U.S.C. § 103(a) as being unpatentable over Loscos in view of Foley et al., "Computer Graphics: Principles and Practice," Addison-Wesley Publishing Company, Inc., February 2002, page 734 ("Foley"); and rejected claims 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Loscos in view of U.S. Patent No. 6,917,370 to Benton ("Benton").

By this amendment, Applicants have amended claims 1, 3-6, 9, and 10, and have canceled claims 11-15. Claims 1-10 are now pending in this application.

I. Interview of June 16, 2006

Applicants thank the Examiner for the courtesy extended to Applicants' representatives in the telephone interview on June 16, 2006. During the interview, Applicants representatives first presented reasoning establishing that Loscos teaches only displaying in two dimensions a three-dimensional model on a computer screen, and thus fails to teach "a three-dimensional image," as recited in claims 1, 3, 5, and 6. The Examiner indicated that he was not persuaded by this reasoning, asserting that the term "three-dimensional image," as recited in the claims was being given the broadest possible meaning which included a three-dimensional model existing in two dimensions,

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement of characterization in the Office Action.

as taught by Loscos. The Examiner further explained that interpreting the term “a three-dimensional image,” as being an actual three-dimensional image as described in Applicants’ specification, would involve reading the specification into the claims.

The Examiner suggested, however, that amending claims 1, 3, 5, and 6 to clarify that the claimed “three-dimensional image,” is an “actual three-dimensional image,” or “a three-dimensional image projected in three dimensions,” would be sufficient to overcome the rejection under Loscos. However, the Examiner further indicated that such an amendment would require a new search, and thus require the filing of a Request for Continued Examination (RCE) to gain entry of such an amendment.

In addition, Applicants’ representatives presented reasoning establishing that the rejection of claims 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Loscos in view of Benton was improper because the references, whether taken alone or combined, failed to teach or suggest every element recited in claims 7 and 8. Specifically, Applicants’ representatives pointed out that Benton merely teaches a camera, and does not teach that the camera “detects a position of a light source existing in real space,” as recited in claim 6, and required by claims 7 and 8. The Examiner asserted that Loscos teaches “detect[ing] a position of a light source,” as recited in claim 6, from which claims 7 and 8 depend, and that Benton teaches that a camera may be positioned “on at least one of the display surface and a surface adjacent to the display surface,” as recited in claim 7. The Examiner asserted that the camera of Benton receives light, thus detecting light, and that the combination of Loscos and Benton teaches or suggests the elements of claims 7 and 8.

II. Rejections under 35 U.S.C. § 103(a)

Applicants respectfully traverse the rejection of claims 1-10 under 35 U.S.C. § 103(a) because a *prima facie* case of obviousness has not been established. To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must “be found in the prior art, and not be based on applicant’s disclosure.” See MPEP § 2143, 8th Ed. (Rev. 4), October, 2005.

In this application, no *prima facie* case of obviousness has been established for at least the reason that the cited references, whether taken alone or in combination, fail to teach or suggest every element recited in claims 1-10.

A. Loscos

For example, Loscos fails to teach or suggest a combination including at least “a three-dimensional image displayed in real space,” as recited in amended claims 1, 3, 5 and 6. Loscos teaches a “system consist[ing] of three steps: 3D reconstruction of the real scene, a preprocessing initialization stage, and an interactive modification stage, during which the user can modify and enhance the real scene.” Loscos, page 293, column 2 (emphasis added). That is, Loscos teaches manually shading computer graphics in accordance with a light source. Loscos further teaches that “the real scene

is represented in our system with an approximation ... [allowing] reconstruction of the basic 3D model visible in the captured images." *Id.* (emphasis added). As further evidenced by Figures 23 and 24, Loscos only teaches constructing virtual 3D model reconstructions of real scenes, the 3D models being displayed as a two-dimensional image, not in real space, but rather on, e.g., a computer monitor. This cannot constitute a teaching of "a three dimensional image displayed in real space," as recited in amended claims 1, 3, 5 and 6 (emphasis added).

Because Loscos, the only cited reference, fails to teach or suggest every element recited in claims 1, 3, 5, and 6, a *prima facie* case of obviousness has not been established.

In addition, Applicants note that Loscos is the only reference relied upon by the Examiner for this particular rejection. The MPEP sets forth that

[t]he distinction between rejections based on 35 U.S.C. 102 and those based on 35 U.S.C. 103 should be kept in mind. Under the former, the claim is anticipated by the reference. No question of obviousness is present. In other words, for anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. Whereas, in a rejection based on 35 U.S.C. 103, the reference teachings must somehow be modified in order to meet the claims. The modification must be one which would have been obvious to one of ordinary skill in the art at the time the invention was made. M.P.E.P. § 706.02(IV).

The MPEP clearly instructs that, for a proper 35 U.S.C. § 103 rejection, "the reference teachings must somehow be modified in order to meet the claims." *Id.* Therefore, if the Examiner applies a 35 U.S.C. § 103(a) rejection based on Loscos, he must articulate how Loscos must be modified to supposedly teach each and every claim element. The Examiner does not explain how or why Loscos must be modified, other

than to make a generalized allegation that "it would have been obvious to one of ordinary skill in the art to use a detector or detecting to measure a light source position." Office Action, page 3.

Moreover, "[i]t is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply." MPEP § 706.02(j). The Examiner's rejections are not properly communicated, as there is no explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification to meet the elements of Applicant's independent claims.

The MPEP further instructs that,

[a]fter indicating that the rejection is under 35 U.S.C. 103, the examiner should set forth in the Office action:

- (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
- (B) the difference or differences in the claim over the applied reference(s),
- (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and
- (D) *an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.* Id. (emphasis added).

In this rejection, the Examiner has not set forth "an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification." Id. Accordingly, a *prima facie* case of obviousness has not been established for this reason also. Applicants therefore respectfully request that the Examiner withdraw the rejection of claims 1, 3, 5 and 6 under 35 U.S.C. § 103(a).

B. Loscos in view of Foley

Regarding the rejection of claims 2 and 4, claims 2 and 4 respectively depend from respective claims 1 and 3, and thus require all of the elements recited in claims 1 and 3. As discussed above, Loscos fails to teach or suggest a combination including at least “a three dimensional image displayed in real space,” as recited in amended claims 1 and 3. Foley, cited by the Examiner at page 4 of the Office Action for allegedly teaching “detecting lightness of the light source,” fails to cure the above noted deficiencies of Loscos.

Foley teaches a method for summing multiple virtual light sources in order to illuminate computer graphics on a computer screen. See Foley, page 734, and title page. Because Foley teaches displaying computer graphics on a two-dimensional computer screen, Foley also fails to teach or suggest a “three-dimensional image displayed in real space,” as recited in claims 1 and 3 and required by claims 2 and 4.

Because neither Loscos nor Foley teach or suggest every element required by claims 2 and 4, a *prima facie* case of obviousness has not been established. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 2 and 4 under 35 U.S.C. § 103(a).

C. Loscos in view of Benton

Regarding the rejection of claims 7-10, claims 7-10 depend from claim 5, and thus require all of the elements recited in claim 5. As discussed above, Loscos fails to teach or suggest at least “a three-dimensional image displayed in real space,” as recited in claim 5, and required by claims 7-10. Benton, cited by the Examiner at page 5 of the

Office Action for allegedly teaching "the claimed detector," fails to cure the above-noted deficiencies of Loscos.

Benton teaches an augmented reality/virtual reality method and system wherein a "computer is also receiving information from an orientation sensor 530 coupled to a video camera 520," and "the computer runs software 500 that comprises virtual reality and augmented reality systems." Benton, col. 6, lines 10-13. As shown in Fig. 6, information is displayed on display 690, which is a television or computer monitor, capable of displaying only a two-dimensional image. Accordingly, Benton also fails to teach or suggest a "three-dimensional image displayed in real space," as recited in claim 5, and required by claims 7-10.

Because neither Loscos nor Benton teach or suggest every element required by claims 7-10, a *prima facie* case of obviousness has not been established. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 7-10 under 35 U.S.C. § 103(a).

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: 
Darrell D. Kinder, Jr.
Reg. No. 57,460